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Basil Bernstein at the Micro Level of the Classroom

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ABSTRACT *This paper focuses on questions related to pedagogic practices in the classroom and is fundamentally based on Bernstein's theory of pedagogic discourse. It discusses the interplay of the characteristics of pedagogic practice which former studies have indicated contain the potential for a better scientific understanding. It also discusses the importance of a mixed pedagogic practice with strong or weak values of classification and framings, depending on given aspects of that practice. The paper continues with a discussion of some aspects of the methodologies used, and a discussion of education as a horizontal structure of knowledge with science educators' common reluctance to accept ways of teaching based on horizontal structures of knowledge with weak grammars (e.g. sociology). The paper suggests how this can be reversed if Bernstein's theory, with its high conceptual structure, is considered.*

Introduction

This article contains two distinct, inter-related parts. The first is related to the study of pedagogic practices in the school and the research methodology used, and the second focuses on the discussion of education as a horizontal structure of knowledge.

Although considering psychological approaches, namely Vygotsky's (1978) social constructivism, the research discussed here has been mostly based on Bernstein's theory of pedagogic discourse (1990, 2000). Bernstein's theory has provided concepts to define learning in social contexts and the interactions that occur in them that may be used to create contexts where children are active learners. The research we have conducted, at the micro level of the classroom and the family (for example, Morais *et al.*, 1993, 2000; Morais & Neves, 2001; Morais & Pires, 2002) and at the meso level of teacher education and syllabuses, has suggested a number of conclusions and has directed attention to important issues related to processes of stability and change. At the level of the instructional context, the studies were focused on science education. At the level of the regulative context, the studies were focused on both science education and other classroom contexts. In the following we address some aspects of this research.

The understanding of differential achievement in science requires an analysis of specific pedagogic discourses as a set of rules that regulate the transmission/acquisition of scientific knowledge. Pedagogic discourse refers not only to the scientific contents and

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competences to be transmitted, but also to their transmission and evaluation—that is, it refers to *the what* that is transmitted, *how* it is transmitted, and also which student realisations are considered legitimate.

Bernstein's theory establishes that pedagogic discourse is made up of two discourses: regulative discourse (RD), and instructional discourse (ID). RD is a discourse of order which translates the dominant values of society and regulates the form of *how* knowledge is transmitted. ID is a discourse of competence that refers to *what* is transmitted. The two discourses are incorporated in such a way that RD always dominates ID.

Pedagogic discourse is transmitted through a specific code that integrates specialised contexts (e.g. science classroom contexts) and the selection and production of appropriate texts to these contexts. Any textual production in a given context depends on the acquisition of the specific coding orientation to it. This means that learners should have acquired the recognition rules (i.e. they should be able to recognise the context) and also the realisation rules to produce the respective legitimate text. Realisation rules are principles that contain two dimensions: selection of meanings, and respective textual production. In other words, to produce a legitimate text, the subject should be able to select the relevant meanings and to produce the text according to those meanings.

Any pedagogic practice at the school level is the activation of a pedagogic code that, in its turn, is the institutionalisation of the school's elaborated orientation through specific values of classification and framing. Classification and framing translate power and control relations between the categories subjects, discourses and spaces. In this way, the underlying pedagogic practice is a theory or theories of instruction.

Mixed Pedagogic Practices and School Learning

Our research has indicated that mixed pedagogic practices of weak and strong classifications and framings, depending on given aspects of those practices, can lead students to acquire recognition of school contexts and realisation in those contexts. Our studies have shown that while weak classifications and framings are an essential condition for learning at the level of pacing, for hierarchical rules, for knowledge relations (interdisciplinary, intradisciplinary, academic–non-academic), and for relations between spaces, they are less so at the level of selection (at least at the macro level) and certainly at the level of evaluation criteria. How do these characteristics of pedagogic practice interact to produce better learning, in terms of a higher level of scientific development? How do regulative and instructional contexts interact to ensure such improvement?

Let us start with the evaluation criteria that can be shown to be a crucial characteristic of pedagogic practice. Evaluation criteria are rules that regulate the extent to which legitimate text is made explicit to acquirers. Framing is strong when evaluation criteria are made explicit to the acquirer and is weak when evaluation criteria are implicit. Strong framing at this level may lead children to acquire the recognition and realisation rules of the school context. This needs time, a weak framing of pacing. But time without explicit criteria may be useless.

Bernstein repeatedly argued that successful learning depends to a great extent on the weak framing of pacing—that is, on conditions where children have some control over the time of their acquisition. This has generally been politically unacceptable, since it raises the cost of education. For that reason, only those children who have access to a second site of acquisition (the family) have been likely to succeed.

However, our research has showed how changes in other characteristics of pedagogic practice may create conditions for weakening the framing of pacing. For example, when

the process of transmission-acquisition is characterised by a weak classification between the various scientific contents to be learned (i.e. in a condition of intradisciplinarity), children are conducted to higher levels of abstraction and, therefore, to a more meaningful science understanding, while also being given more time to learn because they are constantly turning back to concepts previously learned. Criteria also become more explicit.

A weak classification of spaces (teacher–student and student–student) is also a condition for simultaneously weakening the framing of pacing and strengthening the framing of the evaluation criteria while weakening the framing of the hierarchical rules. In turn, a weak framing of the hierarchical rules creates a context where children can question, discuss and share ideas, thus strengthening the framing of evaluation criteria. This means that the weakening of classification between spaces constitutes a necessary (not sufficient) condition to alter control relations at other levels of the pedagogic practice, either in instructional or in regulative contexts. A recent study (Morais & Pires, 2002) shows this interplay.

In fact, weak pacing is one of the characteristics that directly or indirectly allow the explicating of evaluation criteria. However, contrary to what is believed, it is possible to weaken the framing of pacing without increasing significantly the amount of time school has to offer to children. The crucial move lies on teacher training—teachers' competence can create classroom social contexts in which the aforementioned characteristics are present. This new approach is dependent on teachers changing their pedagogic principles and ideology. Effective training of teachers that makes them aware of the meaning and effects of their actions, and gives them the opportunity to change their practices, may also be expensive but would be more efficient than increasing indiscriminately the time allowed for acquisition.

The relation between academic and non-academic discourses deserves particular comment. This relation must be characterised by strong classification, although a close relation of communication should be promoted. This means that horizontal discourses are present in school, which may seem paradoxical since school must be based on an elaborated orientation—there are knowledges and competences of a high order to be learned by *all* children, and the school should make them available to all. It is therefore clear why classification at this level must always be kept strong and why some common views of multiculturalism should be rejected. However, a close relation of communication between academic and non-academic discourses has the potential to make knowledge more meaningful, more understandable and applicable. It is clear that such strong classification must be made explicit, particularly for disadvantaged children who are primarily socialised into strong classifications between home and school, and for whom the close relation referred to may be misunderstood as a weakening of classification.

The example that follows was taken from a study carried out by Morais & Miranda (1996) and makes clear the interplay of the sociological characteristics that define the school context. In this particular case, the two characteristics are evaluation criteria and hierarchical rules—that is, the interplay refers to values of framing in the instructional context (evaluation criteria) and in the regulative context (hierarchical rules).

There are many ways and occasions in which to make evaluation criteria explicit at the level of the classroom. Students can be led to produce the text legitimised by school in both the transmission and the evaluation context. Correction and marking of school tests is a way of making evaluation criteria explicit. In the evaluation context, testing is, in general, an especially relevant act. Although specific modalities of pedagogic practice may introduce variations in the degree of importance attributed to tests relative to other

student evaluation elements, they keep being (for both transmitters and acquirers) a privileged communication means for the transmission-acquisition of evaluation criteria. As Bernstein (1990) says, there are criteria that students are expected to acquire and apply to their own practices and those of others. Criteria make the acquirer capable of understanding what is considered a communication, a social relation, and a legitimate or illegitimate position. We can therefore see that, since understanding of evaluation criteria contributes to the production of legitimate text, their acquisition is a factor that influences students' differential achievement.

In the context of the correction and marking of tests, the specific pedagogic text is made visible by notation and information that the teacher provides on students' answers, as well as by the marks given. They can refer either to the instructional or regulative discourse. Knowledges, cognitive competences and scientific processes are the contents of instructional discourse. Social dispositions, namely attitudes and values, rules of conduct and principles of social order are the 'contents' of RD. Thus, for example, if teachers indicate that an answer is 'right', 'wrong' or 'incomplete', they refer directly to ID, where the type of contents depends on the question to which the answer refers. But when teachers write 'answer the same as John's', 'if you had paid attention in the classes your answer would have been right', 'the work in group helped you to understand the subject', 'you did not pay attention to my advice' or 'I can see you have studied', these observations refer to RD since they appeal, respectively, to the value of honesty, rules of conduct, cooperation, obedience and the duties of a student.

The regulative discourse may not be explicated, as in the previous examples, but this does not mean that it is not present. Let us explore the relations between the two discourses in the assessment context, by analysing a hypothetical situation. At the level of instructional discourse, let us imagine different possible behaviours from the part of teachers when correcting an answer that is not complete. A teacher may not make any comment, may simply write 'inc', may give an indication of the scientific contents/competences that are missing, or may write the text that is missing in to a correct answer. In this example, the sequence we gave corresponds to an increasing explicitness of the evaluation criteria—that is to say, increasing strength of framing. We can therefore say that when evaluation criteria become more explicit there is, at the level of instructional discourse, a grading from weak to strong framing. What is simultaneously happening with the regulative discourse? Teacher textual production expresses the evaluation criteria more clearly, personalising the transmission-acquisition process, taking into account the individual student being addressed, giving to the student instruments that can, ultimately, be used to contest the marking (i.e. weakening the framing of the hierarchical rules). Thus, at the same time that criteria of evaluation are made more explicit in test correction and marking, they increase framing at the level of ID and decrease it at the level of RD.

Figure 1 shows the inter-relations between framing values for ID and RD in the assessment context. Considering the example given as an indicator of the strength of framing in the assessment context, we can place it on the four-point scale shown in Fig. 2. The strength of framing increases from the first point (F^{--}) to the fourth point (F^{++}), the first two points corresponding to weak framing and the last two to strong framing in discursive rule evaluation criteria. In contrast, the strength of framing of hierarchical rules (RD) decreases from the first (F^{++}) to the fourth (F^{--}) point.

A teacher who behaves according to the first point does not make the criteria of evaluation explicit and, as such, does not give to the student the possibility of learning the legitimate text and of how to give a correct answer in the future. The message is

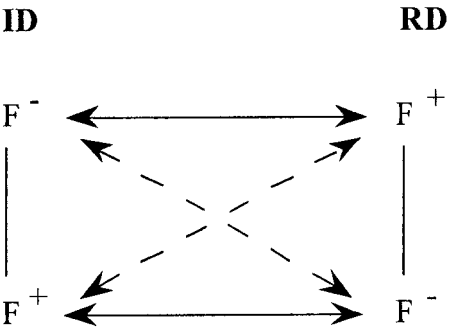

FIG. 1. Relations between ID and RD in the assessment context (Morais & Miranda, 1996).

INDICATOR	CONTROL RELATIONS FOR EVALUATION CRITERIA (ID)			
	F^{--}	F^{-}	F^{+}	F^{++}
Incomplete answer	Does not make any notation	Writes 'inc'	Gives an indication of the scientific contents/competences which are missing	Indicates (writes) the text which is missing in the answer
INDICATOR	F^{++}	F^{+}	F^{-}	F^{--}
	CONTROL RELATIONS FOR HIERARCHICAL RULES (RD)			

FIG. 2. Scale for framing relations of ID and RD in the assessment context—example for one indicator (Morais & Miranda, 1996).

therefore left implicit. The mode of control, at the level of regulative discourse, is imperative/positional; i.e. framing is strong at the level of RD (hierarchical rules). In contrast, a teacher behaving in terms of the last explicates the text considered to be legitimate and, as such, gives to the student the possibility of self-evaluation and of giving a correct answer in the future. The message is explicit. In this case, the teacher uses a personal control; i.e. framing is weak at the level of RD (hierarchical rules). The student gets the means to discuss the mark accorded.

In the same way, whenever teachers give the value of each question to students before they answer the test, and when correcting and marking the test they inform them of the mark accorded again to each question, they are making evaluation criteria explicit (strong framing), on one hand, using a personal control in the hierarchical rules (weak framing), on the other.

It should be noted that this particular relation between evaluation criteria and hierarchical rules may not be present in other sub-contexts of the classroom. For example, the teacher–student relation is frequently characterised by strong or weak framing in both evaluation criteria and hierarchical rules. This is represented by the broken lines in Fig. 1.

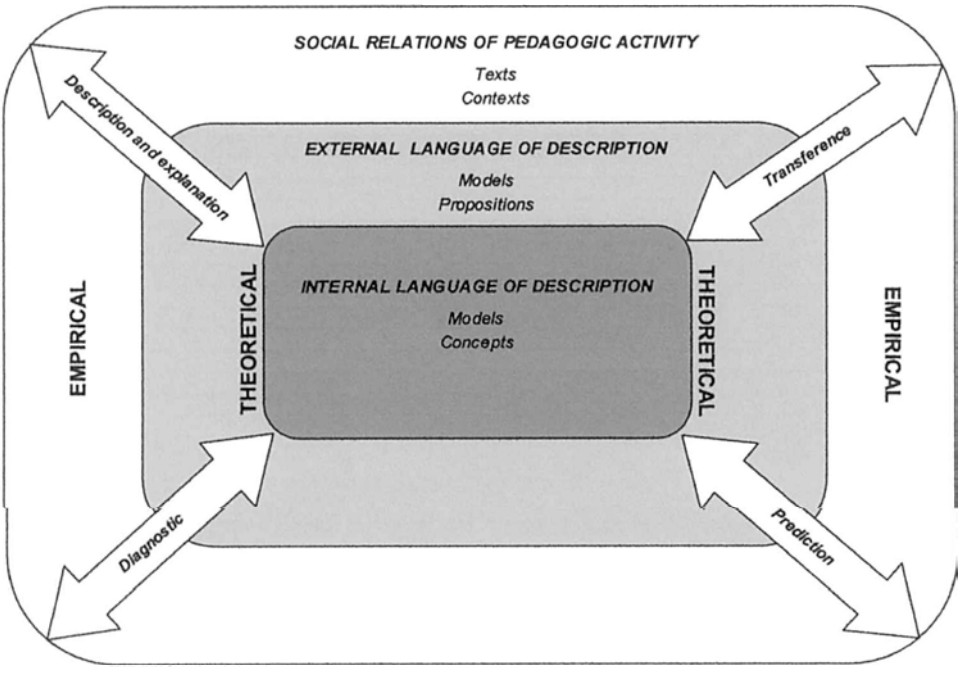

FIG. 3. Sociological methodology of research (adapted from Morais & Neves, 2001).

New Perspectives in Educational Research

I intend here to depart from the polemics between quantitative and qualitative research, and their assumptions and procedures, to focus on the research methodology used in studies of the ESSA Group (Sociological Studies of the Classroom) [1], of which I am one of the coordinators.

Our research methodology is also based on Bernstein (2000) and rejects both the analysis of the empirical without an underlying theoretical basis and the use of the theory which does not allow for its transformation on the basis of the empirical. We have developed an external language of description where the theoretical and the empirical are viewed in a dialectic way. The theoretical models, the language of description and the empirical analysis interact transformatively to lead to greater depth and precision. Our language of description clearly indicates that the approach followed is sociological, focusing on the social relations that constitute pedagogic activity. We aim to make some contribution to achieving order in research in the fields of the sociology of education and of education in general. We believe that the existing 'disorder' has been partially responsible for the rejection of sociological approaches by many educators, not least science educators.

Figure 3 shows these relations between the components of our research schematically. It entails the following conditions.

- The internal language of description is constituted by a theory or set of theories (e.g. Piaget, Vygotsky, Bernstein) that contain concepts and models of a high level of abstraction.
- The external language of description is constituted by propositions and models derived from the internal language of description, now with a higher degree of applicability.

It is the external language of description that activates the internal language of description (Bernstein, 2000).

- The internal and external languages of description constitute the theoretical level of the research methodology.
- The social relations of pedagogic activity refer to pedagogic texts and contexts, and constitute the empirical level of the research methodology.
- The arrows in the model intend to represent the dialectical relation between the theoretical and the empirical—the internal language of description directs the external language of description, and this directs the practical structuring of research and the analysis and interpretation of results. Inversely, the results obtained at the various stages of the empirical work lead to changes of the external language of description, so that its degree of precision is increased. In turn, the external language of description, encompassing changes originated by the empirical, leads to changes of the internal language of description. In this way, the three levels constitute active, dynamic instruments that undertake changes in a real research process.

Whereas orthodox quantitative research has placed the focus on theory, orthodox qualitative research has placed the focus on practice/the empirical. At their extremes, these two research modes are separated by strong classification: quantitative research attributes higher status to theory, and qualitative research attributes higher status to practice/the empirical. The dialectical relation that characterises the research methodology we have followed intends to weaken this classification, considering theory and practice to be equally important for sound research in education. However, this dialectical process is only possible when the internal language of description is sufficiently strongly conceptualised to contain the power to diagnose, describe, explain, transfer and predict. This aspect is also encompassed by the model.

The science of education is fundamentally a horizontal structure of knowledge characterised by weak grammars—that is, a structure of knowledge characterised by parallel languages, produced by various authors, and that contains weak power of conceptualisation. This fact does not allow for educational theories to originate an external language of description and an empirical activity with sound structuring.

We have constructed external languages of description based on internal languages of description provided by authors from fields as distinct as psychology (e.g. Vygotsky), epistemology (e.g. Popper) and sociology (Bernstein). However, it is Bernstein's theory that has allowed substantial progress in our research, as a consequence of the power to diagnose, describe, explain, transfer and predict that it contains.

Education as a Horizontal Structure of Knowledge

The recent analysis made by Bernstein (1999) on vertical and horizontal discourses allows a better understanding of the relations between science education and sociology and, within sociology, between diverse views and Bernstein's theory of pedagogic discourse.

Science educators have always resisted the sociological. Apart from some theoretically poorly grounded research on gender and vaguely cultural issues, their interests did not go much further. Only recently, in the 1990s, did a few educators turn to Vygotsky as a way of considering the social context of the science classroom. The general rejection by science educators of sociological approaches is very deep and can be seen as having many roots, only one of which is referred to here.

Experimental sciences are vertical structures of knowledge. Theories of instruction are

horizontal structures of knowledge. That is to say, *the what* to be taught in science classes is quite distinct in its structure from *the how* to be taught. Science teachers and educators have been primarily socialised within specific hierarchical structures of knowledge and they have always found some difficulty in accepting knowledges characterised by parallel languages. This primary socialisation prepares science teachers and educators to *the what* of teaching and learning. However, *the how* of teaching and learning requires of teachers a further socialising process in the horizontal structures of knowledge. To reconcile them, teachers have to make a 'big jump', especially when passing to horizontal structures characterised by weak grammars. This may be one of the reasons why science teachers, science teachers' trainers and science educational researchers have not shown much interest for subjects like sociology.

However, because of the stronger grammar that appears to characterise some aspects of psychology, science educators have accepted them more willingly as knowledges for grounding science education than the knowledges of sociology, characterised by weak grammars. In general, they tend to feel that sociology is very 'loose', poorly conceptualised and unable to help them with their research and practice. In my view, this constitutes a serious problem for improving science education because sociological analysis is then, in general, discarded as non-relevant.

Basil Bernstein's theory constitutes a remarkable exception. I contend that Bernstein's theory, which departs from other sociological theories in many aspects, can be seen to be characterised by a strong grammar because 'it has an explicit conceptual syntax capable of 'relatively' precise empirical descriptions and/or of generating formal modelling of empirical relations' (Bernstein, 1999, p. 164) and this may be one of the many reasons why some science educators have been more willing to accept it. In fact, the strong conceptualisation that it contains, its tendency to higher and higher levels of abstraction, its power of description, explanation, diagnosis, prediction and transferability have appealed to science educators. These science educators are likely to be those who have an interest in the sociological, mainly (but not only) the Vygotskyan followers, and who have found in Bernstein's theory a 'form of thinking' closer to the vertical structures in which they were socialised.

However, many have felt that Bernstein's theory is very complex and that they have not been prepared to make the effort to understand it. Having already been socialised into psychological and epistemological theories, most sociological analyses and interventions have led them to think it is not worth the effort. And, because they do not know the theory, they have not been aware of how much they are missing in their educational analysis and intervention.

If things are somehow different in Portugal, it is because my former science education students and myself have systematically taught Bernstein's theory and the empirical research based on it to undergraduate and research science students. This has always been done not by undervaluing psychological and epistemological approaches, but by giving sociological approaches the level of importance they deserve. In this way, we have tried to weaken the insulation between usually strongly classified fields by following Basil Bernstein's path since throughout his work, without losing his identity as a great sociologist, he made links with other areas of knowledge such as psychology, linguistics, anthropology and epistemology.

My contention is that this is but one of the many reasons why his theory has been widely used across different areas of knowledge. But it is also one of the reasons why many sociologists have not accepted it easily and have criticised it for so long. Their identities have been formed in strongly classified versions of sociology and its weak

grammar, and they reject any attempt at blurring the boundaries between disciplines. Many think that Bernstein's work at which their critique is directed stopped 30 years ago. But I believe that what lies behind this is much related to the fact that his theory departs from other sociological theories in many crucial aspects, with a very strong conceptual structure that places it within horizontal structures of knowledge with strong grammars and even, I would say, in many aspects within a hierarchical structure of knowledge.

The way that Bernstein developed his theory can be seen as having many features in common with the way theories in experimental sciences have developed. Although this may be considered a non-legitimate view, it is extremely interesting to think of it within a rationalist perspective, where a model is first constructed and a methodological approach is defined which opens the way for research work, of testing, modification and enlargement. But it is this very feature that is not easily accepted by many sociologists. The power of description, explanation, diagnosis, prediction and transferability that is part of the greatness of Bernstein's theory is a reason for its rejection by many sociologists who do not share such concerns.

Coming back to science education, I believe that I have brought into it a new dimension, in both research and educational practice. But I also know that this has hardly yet moved outside my own country and this, again, is sociological. Were I British or American, things might be different. I do hope that, in the future, science educators will see the gains they would introduce into their research and practice if Bernstein's views were *really* included in science education. My hypothesis is that these gains could also be extended to other disciplines of the school curriculum.

Final Considerations

The research we have conducted is within a sociology of learning and may make some contribution to a sociological theory of transmission and acquisition. Bernstein's theory has allowed a characterisation of the social context of the classroom, and this constitutes a substantial step forward when we consider the contribution made by psychological theories of instruction. Even when we consider Vygotsky's social constructivism, with its crucial appeal to the interaction between peers and teachers and the role of learning in developing students' cognitive level, we are left both without a means to define and characterise with rigour the social context of the interaction and to understand the relation between the interpersonal and the intrapersonal, the sociological and the psychological.

Epistemological theories (e.g. Popper, Kuhn) have made an important contribution to the conduct of transmission and acquisition, at the level of science education. The hierarchical structure of knowledge that characterises the experimental sciences, such as physics or biology (Bernstein, 1999), has influenced ways in which science education has been structured. But, even in this case, developments have been mostly based on philosophical aspects of science construction, and crucial aspects of the sociology of science have been disregarded. The process of selection entailed in the recontextualising processes of curriculum construction has washed out whatever is sociological. Even at the level of the philosophical dimension of science construction, the focus has been limited to investigations of scientific competences (e.g. interpretation, formulation of hypothesis and problems), often misunderstood as the scientific method, rather than including the relationship between scientific concepts. Although Bernstein (1990) calls attention to the fact that selection of knowledge (concepts and competences) is a social fact rather than a process related to the inner structure of the subject, it should be possible to create

counter hegemonic procedures where a weak classification between intradisciplinary discourses emulates, to a certain extent, the scientific, hierarchical structure of knowledge. Intradisciplinarity plays a crucial role in science education, leading students to move to concepts of higher order with greater power of description, explanation, prediction and transference.

The studies carried out so far point to explicating the evaluation criteria as the most crucial aspect of a pedagogic practice to promote higher levels of learning of *all* students. The studies have also shown the importance of other characteristics, such as weak framing of pacing and hierarchical rules and weak classification of spaces and discourses. Framing of selection and sequence at the macro level should be strong, although they are weak at the micro level, and both should be weakened as students acquire the recognition and realisation rules for specific school contexts. The classification and framing that characterise student relations should be weak, while classification between teacher and students must be strong to allow the teacher to keep control of these values, as indicated. Our studies have shown the form that the interplay of these characteristics may take and its importance for better learning.

The conclusions we have reached so far take us away from dichotomous open/closed schools, visible/invisible pedagogies and progressive/traditional teaching in the direction of a mixed pedagogic practice of weak and strong classifications and framings, according to its specific aspects.

We have arrived at these using research methodology in which a dialectical relation between the theoretical and the empirical was systematically kept. An external language of description, derived from the internal language of description provided by Bernstein, has allowed sound empirical work. Empirical data has introduced change in languages of description, external and internal. All this has only been possible as a consequence of the strong grammar that characterises Bernstein's theory of pedagogic discourse.

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NOTES

[1] The ESSA Group is a research group that is part of the Department of Education at the School of Science, University of London.

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